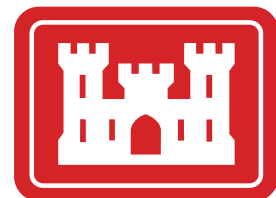


BP Cherry Point Dock Draft Environmental Impact Statement

May 2014



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COVER SHEET
Draft Environmental Impact Statement
BP Cherry Point Dock
Whatcom County, Washington

LEAD AGENCY: Department of the Army
U.S. Army Corps of Engineers, Seattle District

COOPERATING AGENCIES: U.S. Coast Guard

ABSTRACT:

This Draft Environmental Impact Statement (Draft EIS) has been prepared as required by a court-ordered review of a previous permitting action in order to address the incremental environmental risk of operating the existing North Wing of the BP Cherry Point Marine Terminal dock (BP Cherry Point dock). As such, there is no new project application or revised purpose and need for the project to be considered in this Draft EIS. The purpose and need for the North Wing was to reduce tanker standby time in Puget Sound anchorage zones and to improve the efficiency of the BP Cherry Point dock while loading and unloading petroleum transport vessels. The North Wing was constructed and became operational in 2001 after the U.S. Army Corps of Engineers (USACE) issued a second Department of the Army (DA) permit (No. 92-1-00435) under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code § 403).

This review has been prepared to support the USACE, Seattle District decision to continue without change; modify with additional conditions; or revoke the previously issued DA permit for the North Wing. The USACE is examining the incremental environmental risk related to operation of the BP Cherry Point dock at maximum capacity with a single berth (the South Wing) and operating the dock with two berths (the North Wing and the South Wing) at projected future vessel traffic levels.

The Proposed Action is continuing the existing operations at the BP Cherry Point dock with two berths—one principally for import of crude oil and the other for distribution of refined petroleum products.

The USACE is responsible for preparing this Draft EIS in accordance with the National Environmental Policy Act (NEPA) for a DA permit issued under Section 10 of the Rivers and Harbors Act of 1899. The NEPA requires preparation of an EIS to ensure that the USACE and any other federal agency that participates in this regulatory process are adequately informed of the potential environmental impacts of their decisions regarding permits issued under their jurisdiction.

The Draft EIS evaluates three alternatives, including the No Action Alternative. Potential direct, indirect, and cumulative impacts were evaluated for resources that could be affected by the proposed Project.

All comments concerning this Draft EIS are requested to be submitted by **August 6, 2014**.

For further information or to submit comments, contact the U.S. Army Corps of Engineers, Seattle District:

U.S. Army Corps of Engineers, Seattle District
4735 East Marginal Way South
Seattle, WA 98134
Attention: Olivia Romano
or
olivia.h.romano@usace.army.mil

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EXECUTIVE SUMMARY

WHAT IS THE PURPOSE OF THIS ENVIRONMENTAL IMPACT STATEMENT?

The purpose of this Environmental Impact Statement (EIS) is to examine the incremental environmental risk—principally from vessel traffic—related to operation of the North Wing of the BP Cherry Point Marine Terminal dock (BP Cherry Point dock). *Incremental environmental risk* is defined in this EIS as the change in environmental risk between operating the BP Cherry Point dock at maximum capacity with a single berth (the South Wing) and operating the dock with two berths (the North Wing and the South Wing) at projected future vessel traffic levels.

The Proposed Action is continuing the existing operations at the BP Cherry Point dock with two berths—one principally for import of crude oil and the other for distribution of refined petroleum products.

The U.S. Army Corps of Engineers (USACE) is responsible for preparing this EIS under the National Environmental Policy Act (NEPA) for a Department of Army (DA) permit issued under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code § 403). The National Environmental Policy Act (NEPA) requires preparation of an EIS to ensure that the USACE and any other federal agency that participates in this regulatory process are adequately informed of the potential environmental impacts of their decisions regarding permits issued under their jurisdiction.

WHAT IS THE HISTORY LEADING UP TO PREPARATION OF THE EIS?

In 1971, the BP Cherry Point dock was permitted for construction of two berths, although only one berth (the South Wing) was constructed. The second berth (the North Wing) was constructed and became operational in 2001 after the USACE issued a second DA permit (No. 92-1-00435) under Section 10 of the Rivers and Harbors Act of 1899. In November 2000, a lawsuit was initiated against the USACE concerning the adequacy of the NEPA environmental review for permitting the North Wing.¹ The litigation required preparation of a vessel traffic study and completion of an EIS focused on the potential increased risk of vessel spills associated with operation of the North Wing.

WHAT IS THE PROJECT'S PURPOSE AND NEED?

The purpose and need for construction of the North Wing was to reduce tanker standby time in Puget Sound anchorage zones and to improve the efficiency of the BP Cherry Point dock while loading and unloading petroleum transport vessels.

This EIS was prepared as required by a court-ordered review of a previous permitting action in order to address the incremental environmental risk of operating a portion of the BP Cherry Point dock. As such, there is no new project application or revised purpose and need for the project to be considered in this EIS. The environmental review is intended to support the USACE's decision to continue without change, modify with additional conditions, or revoke the previously issued DA permit for the North Wing.

¹ The lawsuit questioned the DA permit's compliance with the Magnuson Amendment (33 U.S. Code §476.) A discussion of the Magnuson Amendment is included in Appendix H.

HOW WAS THE SCOPE OF THE EIS DETERMINED?

The scope of issues, geographic extent, and time frame of analysis in the EIS were established in two ways. First, the litigation settlement stipulated that a vessel traffic study was to be completed. It also specified the study area, time frame, and certain other parameters for the vessel traffic study.² Second, the public, government agencies, and tribes were invited to participate in a scoping process to provide further input to the USACE. The public scoping process included the following:

- A Notice of Intent (NOI) to prepare an EIS that was published in the Federal Register on August 16, 2006.
- A Public Scoping Notice that was published in the Federal Register on August 16, 2006.
- Public scoping meetings that were held at Port Angeles, Anacortes, Ferndale, and Seattle between September 5 and September 15, 2006.
- A tribal and agency scoping meeting that was held in Seattle on September 5, 2006.
- Public comments on scoping issues from all interested parties were received by the USACE from August 16 through September 15, 2006.

Sixty-one separate comments were received during the scoping process and were reviewed by the USACE. A summary of the scoping comments and the scope of the EIS are included in the Scoping Report (Appendix B).

WHAT IS THE SCOPE OF THE EIS?

Based on the outcome of the litigation and the results of the public and agency scoping process, the USACE determined that the scope of analysis to be included in this EIS included evaluation of:

- The incremental environmental effects of operating both wings of the BP Cherry Point dock at current and forecasted future vessel traffic levels for the years 2025 and 2030 compared to operating the South Wing of the BP Cherry Point dock at maximum capacity;
- The risk of potential accidents and oil spills considering vessels carrying crude oil and refined petroleum products to and from the BP Cherry Point dock within that portion of the Puget Sound bounded by the beginning of the Traffic Separation Scheme (TSS),³ (approximately 8 miles west of the “J” Buoy, offshore of Cape Flattery), Admiralty Inlet, and the U.S./Canadian border in the southern reaches of the Strait of Georgia;
- The effect of extended escorts for vessels transiting to the BP Cherry Point dock from the entrance to the Strait of Juan de Fuca to approximately Port Angeles, where escorting of vessels currently begins;
- The effect of posting a year-round vessel assist tug at Neah Bay; and

² The geographic scope of the EIS includes the Project area as defined by the geographic extent of the physical, chemical, and biological effects resulting from the Project, including the direct and indirect effects and effects of interrelated and interdependent activities. The Project area encompasses the north-south boundary marked by the TSS system, 8 miles west of the “J” Buoy at the entrance to the Strait of Juan de Fuca to the BP Cherry Point dock, and the vessel routes from the BP Cherry Point dock to the refineries near March Point. The geographic scope also includes the tidal zone (200 feet inland) within the defined Project area.

³ The Traffic Separation Scheme is a traffic management route system operated jointly by the U.S. Coast Guard and Canadian Coast Guard. The TSS is used to regulate traffic at busy, confined waterways.

- The effect of discontinuing the use of the Huckleberry-Saddlebag Route from Cherry Point to Padilla Bay.

Elements not considered were construction of the North Wing and extension of the vessel traffic study to include vessel traffic along the Pacific coast and high seas vessel traffic routes.

USACE and the President's Council on Environmental Quality (CEQ) guidelines for implementation of NEPA require that an EIS evaluate the effect of the proposed action on relevant environmental resources, including direct, indirect, and cumulative effects. To comply with NEPA, this EIS evaluates the potential change in environmental risk associated with operating the North Wing of the dock, an increase in vessel traffic, and the associated potential accident and spill risks.

The EIS discusses potential effects on the following resources:

- Nearshore and Marine Resources, including federally and state-listed species
- Nearshore and Marine Habitats
- Water Quality
- Cultural Resources
- Land Use
- Recreation Resources
- Air Quality and Climate Change
- Tribal/Subsistence Fishing
- Socioeconomics and Environmental Justice

During scoping, several issues were identified for consideration in the EIS analysis. Upon further review, it was determined that some issues would not be included in the scope of analysis for the EIS. These issues and the reason they were not addressed are described in the EIS.

WHAT IS THE PROJECT EVALUATED IN THE EIS?

The scope of the EIS is to evaluate the incremental change in environmental risk between operating the BP Cherry Point dock at maximum capacity with a single berth (the South Wing) and operating the dock with two berths (the South Wing and the North Wing) at a level of utilization (vessel calls) projected for the years 2025 and 2030.

For the purpose of the EIS, the Project includes:

- Vessel traffic – tanker and barge traffic to and from the BP Cherry Point dock, including the marine route through the Strait of Juan de Fuca, Rosario Strait, and the waters off of Cherry Point in Washington. Also included are the operations of assist tugs during transit and moorage at the dock.
- Operation and maintenance of the BP Cherry Point dock's North Wing, which consists of a ship berth, loading equipment, control and metering equipment for loading refined petroleum product, oil spill preparedness and response equipment, and operation of these systems.

Because the scope of this EIS is to address the incremental environmental risk of operating a portion of the BP Cherry Point dock, operation of the refinery, tank farm, and interconnecting piping between these facilities are not part of the Project considered in the EIS.

The BP Cherry Point dock consists of two wings (the South Wing and the North Wing) in a “Y”-shaped configuration that are connected to the shore and the BP Refinery tank farm with a trestle and pipelines. Figure ES-1 is an aerial view of the BP Cherry Point dock.



Figure ES-1 Aerial View of BP Cherry Point Dock

Source: NOAA 2013.

Figure ES-2 shows the layout of the dock including the North and South Wings. The trestle that connects the dock to the shore (shown as the “approach trestle” in Figure ES-2) includes vessel unloading and loading equipment and a vehicle roadway and pipelines for transfer of crude oil and refined petroleum product between the dock and the refinery tank farm. Each wing on the dock consists of a single vessel berth, mooring dolphins, and a loading platform. The trestles that connect the wings to the dock (the “connecting trestles in Figure ES-2) include two platforms for vehicle maneuvering, oil spill equipment, and a berth for support vessels (workboats and an oil spill skimmer support vessel).

The South Wing is configured to unload or load both crude oil and refined petroleum product. The North Wing is configured to load and unload only refined petroleum product. The dock includes segregated piping for movement of refined petroleum product from the refinery tank farm to the North Wing.

Unloading or loading crude oil at the North Wing would require modification to the existing piping, valving, and loading system on the North Wing. BP does not seek to construct or modify any facilities as part of the Proposed Action.

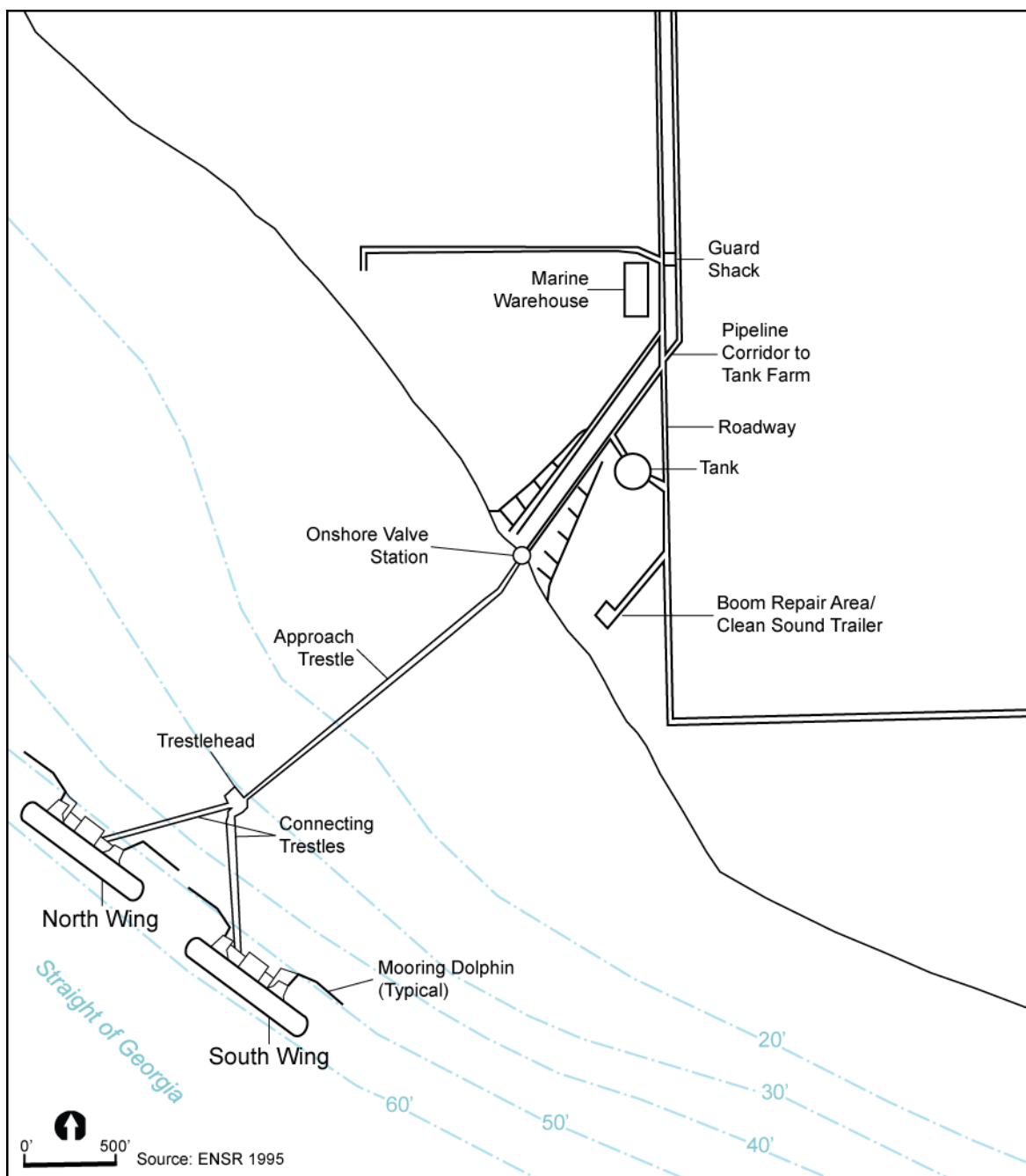


Figure ES-2 BP Cherry Point Dock Configuration

Ships approach the dock under the direction of the ship's master and a harbor pilot, and are assisted to the dock by two tugs. The BP Cherry Point dock requires tankers to use a minimum of two assist tugs for docking and undocking. Barges, including articulated tugs and barges (ATBs), are required to use a minimum of one assist tug for docking and undocking. After docking and securing all lines, spill retention booms are deployed to enclose the vessel loading area.

Vessels are permitted to conduct unloading and loading operations only in calm and moderate wind/wave conditions. When winds reach a predetermined strength, unloading and loading operations cease and the vessel moves to a temporary anchorage, as directed by the U.S. Coast Guard (USCG), to wait for winds and waves to subside to a safe level.

Other features of the dock and its operation include oil spill prevention and response, an oily water collection system, dock maintenance, and ballast water discharge restrictions.

HOW DOES VESSEL TRAFFIC MOVE TO AND FROM THE BP CHERRY POINT DOCK?

Vessels transiting to the BP Cherry Point dock are controlled through their transit of the study area by the USCG and/or the Canadian Coast Guard (CCG). Vessels from Alaska, Oregon, California, and international origins enter the western end of the Strait of Juan de Fuca and travel to the vicinity of Port Angeles, Washington, where a pilot comes on board. Vessels check-in with the joint USCG/CCG Cooperative Vessel Traffic System (CVTS) prior to entering the Strait of Juan de Fuca and remain under either USCG or CCG control during transit to and from ports within the Strait of Juan de Fuca, Puget Sound, and the Georgia Strait.

For a portion of the transit, tankers carrying oil or oil products are required to take two escort tugs in company. Most vessels continue through Rosario Strait to the southern reach of the Strait of Georgia and on to the BP Cherry Point dock. During transit through Rosario Strait, vessel traffic is limited to one-way passage by USCG vessel traffic rules. Occasionally, vessels transiting to the BP Cherry Point dock may travel north through Haro Strait and then northeast through Boundary Pass to the BP Cherry Point dock.

ATBs and traditional barges (collectively referred to as *barges*) and some tank ships may transit to the BP Cherry Point dock from lower Puget Sound (generally Seattle and Tacoma). These vessels transit through Admiralty Inlet and north along the western side of Whidbey Island, through Rosario Strait, and then north to the BP Cherry Point dock. Vessels departing from the BP Cherry Point dock take the routes described above in reverse, using the outbound or southbound TSS lanes as appropriate. Vessels approaching the BP Cherry Point dock may be required to temporarily anchor at a designated local anchorage if the berths at the dock are occupied or unavailable.

Tank ships and barges having called at the BP Cherry Point dock may then transit to the refineries located at March Point in Padilla Bay through the Huckleberry-Saddlebag or the Guemes Channel Routes. The Huckleberry-Saddlebag Route is adjacent to Lummi Island and Sinclair Islands. Figure ES-3 shows the vessel traffic routes in proximity to the BP Cherry Point dock.

HOW WAS THE DOCK USED IN THE PAST?

The primary measure of dock activity is the annual number of vessel calls. BP records of vessel calls from January 1998 through December 2010 show that an annual average of 321 vessel calls occurred at the BP Cherry Point dock. These calls included tank ships delivering crude oil feed stock to the refinery and tank ships or barges exporting refined petroleum product to market destinations. During this period, approximately 16.4 vessels on average arrived per month to deliver crude oil. During the same period, approximately 26.8 vessels on average per month loaded and departed from the BP Cherry Point dock to deliver refined petroleum product to market destinations. Total annual vessel calls have ranged from a low of 247 in 1998 to a high of 416 in 2007. The annual maximum number of calls (416) in 2007 consisted of 191 crude oil carriers and 225 refined petroleum product carriers.



Figure ES-3 Vessel Traffic Routes

A second measure of dock activity is the annual volume of crude oil and refined petroleum product transferred across the dock (total material transfer). From 1998 through 2010, the total material transfer at the BP Cherry Point dock ranged from a low of approximately 91,027,240 barrels (bbl) (3.823 million gallons) in 2005 to a high of 115,282,883 bbl (4.842 million gallons) in 2000. The variation of material transfer for this period was partly influenced by the outage of the Olympic Pipeline in 1999.

While the average number of vessel calls was 321 calls per year (from 1998 to 2010), the maximum capacity of the South Wing was determined to be approximately 335 calls per year. This includes consideration for dock weather outages and maintenance activities, in addition to vessel mooring and loading/unloading operations.

WHAT ARE THE PROJECTED FUTURE OPERATIONS OF THE DOCK?

BP provided projections of reasonably foreseeable changes in vessel traffic to and from the BP Cherry Point dock through calendar years 2025 and 2030, based on continued operation of the refinery at its current level of production. During the period from 1998 to 2010, annual vessel calls have ranged from 247 to 416, and annual material transfer at the dock has ranged from 91 to 115 million barrels. The range in both annual vessel calls and material transfer demonstrates the variability in dock operations and the difficulty of forecasting future traffic projections based on refinery operations. However, BP provided three vessel traffic forecast scenarios based on variations in market conditions:

- **Increased Pipeline Deliveries (Low-Range Forecast – between 170 and 220 vessel calls per year).** Assumes that deliveries by pipeline of crude oil to supply the refinery from Alberta resources would increase. Since its initial forecast, BP installed a Rail Logistics Facility at the refinery (which began operations on December 26, 2013) to enable deliveries of crude oil from domestic sources—principally the Bakken field in the Mid-West by rail. This may reduce the need for delivery of crude oil by tanker and the number of annual tanker calls at the BP Cherry Point dock.
- **Current Conditions (Medium-Range Forecast – between 320 and 400 vessel calls per year).** Assumes that the degree of reliance on offshore and Alaskan crude oil sources would continue. This scenario results in a level of annual calls in the same range as has occurred in the past.
- **Potential Future Growth (High-Range Forecast – between 350 and 420 vessel calls per year).** Recognizes that existing North Slope Alaska production declines may not be replaced by new onshore or offshore production in Alaska and that crude oil supplies must be obtained from a broader geographic array of sources. This is expected to lead to an increase in the number of vessel calls at the BP Cherry Point dock.

For each scenario, a range of calls was established—split between crude oil deliveries and refined petroleum product distribution. Under the upper limit of future vessel traffic growth conditions (the high-range forecast), the 2030 forecast predicts that the BP Cherry Point dock could receive between 350 and 420 vessel calls per year through 2030.

WHAT ALTERNATIVES WERE CONSIDERED IN THE EIS?

NEPA requires consideration of reasonable alternatives to the Project that could minimize impacts on the environment, including the No Action Alternative. The EIS considered the following actions:

- **Proposed Action.** Under the Proposed Action, BP would continue to operate the North and South Wings in their present configuration. The USACE would modify a DA permit for

continued operation and maintenance of the dock, with conditions including prohibiting the use of the North Wing for unloading or loading crude oil.

- **No Action Alternative.** Under the No Action Alternative, the current DA permit would be revoked and BP would be required to remove the North Wing facility.
- **Alternative A.** Alternative A would be identical to the Proposed Action except that the conditions on operations of the North Wing including prohibiting unloading and loading crude oil would not be included.

HOW WAS THE RISK OF POTENTIAL ACCIDENTS AND OIL SPILLS EVALUATED IN THE EIS AND WHAT WERE THE RESULTS?

Two detailed technical studies were used to examine the risk of potential accidents and oil spills:

- **Vessel Traffic Risk Assessment (GWU VTRA).**⁴ This study was prepared by a George Washington University-led team that used a traffic simulation to assess the incremental risk of vessel accidents and potential oil spills based on current and future vessel traffic calling at the BP Cherry Point dock. The GWU VTRA also incorporates several traffic management mitigation measures.
- **Vessel Traffic Analysis (TGA VTA).**⁵ This study was prepared by The Glosten Associates, Inc. to estimate changes in vessel traffic accident risk and the associated risk of oil spills attributable to the upper limit of forecasted vessel traffic calling at the BP Cherry Point dock. It should be noted that the TGA VTA statistical model incorporates a number of assumptions and simplifications to accommodate gaps in data or the absence of historical incidents in some categories. The results of the TGA VTA should not be viewed as accurate forecasts of spill events. What can usefully be obtained from the model results is the direction and relative magnitude of changes in specific risk statistics when comparing different cases.

The result of these two studies formed the bases for assessing the incremental environmental risk of operation of the North and South Wings together compared to operating only the South Wing. Both the GWU VTRA and the TGA VTA examined the annual *change in the probability of potential accidents* and the *potential volume of oil that could be released* from accidents involving tank ships and barges bound for the BP Cherry Point dock.

Tank ship traffic calling at the BP Cherry Point dock accounts for 1.1 percent of all traffic in Puget Sound (normalized for time spent in transit) and 2.6 percent of all traffic in Puget Sound when adding barges calling at Cherry Point. Because the majority of the barge traffic is on routes to the southern reaches of Puget Sound, it can be inferred that approximately 1.1 percent of the traffic entering Puget Sound and transiting the Strait of Juan de Fuca is traffic destined for the BP Cherry Point dock (van Dorp et al. 2008).

⁴ The GWU VTRA refers to van Dorp, J.R., J.R.W. Merrick, J.R. Harrauld, and M. Gabowksi. 2008. Assessment of Oil Spill Risk due to Potential Increased Vessel Traffic at Cherry Point, Washington. Final Report. Submitted to BP on August 31, 2008.

⁵ The TGA VTA refers to The Glosten Associates, Inc. 2013. BP Cherry Point Vessel Traffic Analysis. Draft Study Report. Prepared for Cardno ENTRIX, Seattle, WA. Prepared by The Glosten Associates, Inc. in collaboration with Environmental Research Consulting, Cortlandt Manor, NY, and Northern Economics, Inc., Anchorage, AK. (File No. 12121.01.) May 15.

The general conclusions regarding the incremental increase in potential accidents and oil spills from the GWU VTRA and the TGA VTA include the following:

- At current and future traffic levels up to the maximum capacity of a single-wing dock, operation of a second wing reduces the potential for accident, oil spill, and potential oil spill volume. (GWU VTRA)
- At future traffic levels at the upper limit projected for operation of the BP Cherry Point dock, an increase in the potential for accidents and oil spills may occur irrespective of the dock configuration. (TGA VTA)
- The addition of traffic generated by the other proposed projects (cumulative projects) in the region will likely increase the potential for accidents and oil spills. (TGA VTA)
- The type of accident likely to produce the largest cumulative spill volume includes spills caused by equipment failures, fires, explosions, operator errors, and structural failures. (TGA VTA)
- The subarea with the greatest potential change in spill size (but not frequency) may be the Cherry Point area at the upper limit of projected annual calls on two wings compared to the maximum annual calls on a single wing projected by BP. (TGA VTA)

These results are specific to different future vessel traffic forecasts. Future economic conditions related to the sources of supply of crude oil to the BP Refinery and alternative means of delivering that crude oil by land-based systems (pipeline and rail) suggest that the low- or mid-range vessel traffic forecast is more likely to occur.

WHAT ARE THE POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES?

The environmental resources in the Project area were analyzed to determine the likely environmental consequences of:

- Operation activities at and in the maneuvering area of the North Wing;
- Changes in the number of vessels transiting to the BP Cherry Point dock through the Project area;
- Removal of the North Wing;
- Spill of crude oil or refined petroleum product in the Project area; and
- Clean-up actions in the event of a spill.

Regardless of the results of the vessel traffic study, a spill of any size theoretically could occur anywhere in the Project area. For this reason, the potential impacts from a spill of crude oil or refined petroleum product and the associated clean-up actions are discussed broadly for each resource in this EIS but are not included in this executive summary. The remaining three factors that could affect environmental resources are provided in Table ES-1.

The two vessel traffic studies addressed the potential for spills of crude oil and refined petroleum product under current and future conditions, and generally concluded that (1) operation of a second wing reduces the potential for accident, oil spill, and potential oil spill volume at current and future traffic levels up to the maximum capacity of a single-wing dock (approximately 335 calls per year) (GWU VTRA); and (2) an increase in the potential for accidents and oil spills may occur irrespective of the dock configuration at future traffic levels at the upper limit of vessel traffic projected for operation of the BP Cherry Point dock (up to 420 calls per year) (TGA VTA).

If the number of future tank ship and barge calls continues in BP's current conditions (mid-range) forecast or low-range forecast, the likelihood of any increase in spill frequency or volume is reduced with operation of the North Wing under these scenarios. Should the number of vessel calls increase to the annual maximum of 420 calls, the potential frequency of accidents and spills may be slightly increased.

Under the No Action Alternative with only one wing in operation under current vessel traffic forecast conditions, the potential frequency of accidents and associated oil outflow would increase, with associated higher risks to environmental resources from crude oil spills and clean-up activities.

Table ES-1 provides a summary of the potential impacts on resources in the Project area from the Proposed Action, Alternative A, and the No Action Alternative.

Table ES-1 Potential Impacts on Resources in the Project Area from the Proposed Action, Alternative A, and the No Action Alternative

Resource Area	Proposed Action and Alternative A		No Action Alternative
	Incremental Impacts from Operations at the North Wing	Incremental Impacts from Changes in Vessel Traffic	Impacts from Removal of the North Wing
Nearshore and marine resources	Hazardous material spills at the BP Cherry Point dock are not expected to occur in sufficient magnitude or frequency to adversely affect nearshore and marine resources, including federally and state-listed species. Aquatic invasive or nuisance species could be introduced through ballast water discharge; however, the risk of introduction would be minimized by compliance with U.S. Coast Guard and state regulations. BP provides reception facilities for the discharge of cargo tank ballast. Maintenance activities would be limited in duration and magnitude, and are not expected to adversely affect nearshore or marine resources. Temporary effects on fish could result from lighting during loading.	Vessel collisions with marine mammals could occur; however, marine mammals generally detect and move away from vessels. Changes in vessel traffic would not significantly alter existing background noise levels. Birds and fish are likely to move out of the area when vessels are present, resulting in minimal impacts. Entrainment of eggs and larvae suspended in the water column would increase as vessel traffic increases; however, effects are not likely to adversely affect fish in the study area. Changes in vessel traffic are not likely to adversely affect federally or state-listed species.	Increased noise and human disturbance could temporarily displace fish, marine mammals and avian species from the vicinity of the BP Cherry Point dock. Removal of the North Wing would result in the loss of approximately 140,000 square feet of man-made benthic substrate that has been colonized by aquatic organisms. Regeneration of natural benthic habitats with associated benefit to aquatic species is expected to occur. A temporary increase in suspended sediment during removal of the piles would occur in the vicinity of the dock that may temporarily affect critical habitat for ESA-listed species through decreases in prey population or habitat availability from increased disturbance and turbidity.

Table ES-1 Potential Impacts on Resources in the Project Area from the Proposed Action, Alternative A, and the No Action Alternative (Continued)

Resource Area	Proposed Action and Alternative A		No Action Alternative
	Incremental Impacts from Operations at the North Wing	Incremental Impacts from Changes in Vessel Traffic	Impacts from Removal of the North Wing
Nearshore and marine habitat	Aquatic invasive or nuisance species could be introduced through ballast water discharge; however, the risk of introduction would be minimized by compliance with U.S. Coast Guard and state regulations. BP provides reception facilities for the discharge of cargo tank ballast. Temporary effects on nearshore habitat could result from lighting during loading. Accidental releases of small quantities of hazardous materials may occur, but in such small quantities that they are not likely to affect marine resources.	The water column would experience increased turbulent mixing of the surface layers in the area immediately surrounding the vessel path and wake. However, vessels would stay within the Cooperative Vessel Traffic System, an area that is already disturbed by existing vessel traffic.	Removal of the North Wing would eliminate any lighting and minor shading effects on habitat in the vicinity of the dock. Removal of the North Wing would result in the loss of approximately 140,000 square feet of man-made benthic substrate that has been colonized by aquatic organisms. Regeneration of natural benthic habitats, with associated benefit to aquatic species, is expected to occur.
Water quality	Accidental temporary releases of small quantities of hazardous materials may occur, but in such small quantities that they are not likely to contribute to a reduction in water quality at the North Wing.	Water quality is not expected to change as a result of changes in vessel traffic.	Removal of the North Wing could result in temporary decreases in water quality from re-suspension of particulate materials and possible contamination from hazardous materials.
Cultural resources	Spills and releases currently do not occur in sufficient volume or frequency to adversely affect archaeological sites and historic resources near the North Wing.	Cultural resources are not expected to be affected by a change in the number of calling vessels.	Removal of the North Wing could cause physical disturbance or introduction of contaminants, altering the chemical composition of the sediment matrix comprising archaeological sites. Indirect impacts from construction activities, including noise and vibration from construction equipment, could temporarily affect historic resources, archaeological sites, and traditional cultural properties on the shoreline in the vicinity of the dock.
Land use	Continued operations at the North Wing are not expected to affect land use in the study area.	A change in the number of vessels is not expected to affect land use in the study area.	Nearby residents may be temporarily affected by noise, road traffic, and heavy equipment use.
Recreation resources	Continued operations at the North Wing are not expected to affect recreation resources in the study area.	Increased interactions between recreationists and vessels may occur with an increase in vessels; changes in behavior of wildlife may affect wildlife watching opportunities.	Potential short-term impacts on recreational fishermen and boaters may occur during dock removal because of temporary exclusion from the construction area and construction noise.

Table ES-1 Potential Impacts on Resources in the Project Area from the Proposed Action, Alternative A, and the No Action Alternative (Continued)

Resource Area	Proposed Action and Alternative A		No Action Alternative
	Incremental Impacts from Operations at the North Wing	Incremental Impacts from Changes in Vessel Traffic	Impacts from Removal of the North Wing
Air quality and climate change	Decreasing vessels in the area by limiting queuing and waiting at anchor would reduce emissions (including greenhouse gases [GHGs]). Newer Category 3 engines would emit fewer oxides of nitrogen (NO _x), sulfur dioxide (SO ₂), and fine particulate matter (PM _{2.5}). U.S. Environmental Protection Agency (EPA) standards for newly built Category 3 marine diesel engines apply beginning in 2011, and long-term standards will begin in 2016.	Combustion of marine fuel would result in the release of GHGs, including carbon dioxide (CO ₂), methane (CH ₄), and nitrous oxide (N ₂ O). Air emissions are not expected to increase because of the overall lower emission rates associated with new EPA standards for Category 3 marine diesel engines. No portion of the study area is likely to violate the national ambient air quality standards or the Washington ambient air quality standards.	Heavy machinery and work boats would cause some temporary increase in emissions, including GHGs.
Tribal/subsistence fishing	Continued operations at the North Wing are not expected to change existing effects on subsistence fishing in the study area.	The presence of deep draft vessels could interrupt troll vessel and gillnet fishing; crab and shrimp pots placed in transit lanes and maneuvering areas could be damaged.	Disturbance of man-made benthic habitat and temporary suspension of sediment may cause temporary impacts on subsistence fishing resources in the area adjacent to the North Wing.
Socioeconomics and environmental justice	A minor increase in employment and income could result from increased dock operations. No impacts on environmental justice populations are expected.	Changes in vessel traffic may cause minor to negligible impacts on coastal residents and in-water and nearshore activities, such as commercial vessel traffic, aquaculture, fishing, boating, and beach recreation. An increase in sales and taxes is possible if the number of vessels sold and registered in the State of Washington increases. Minor and limited potential impacts on environmental justice populations may occur related to in-water activities such as fishing and boating.	Dock removal could create short-term jobs that could generate local and non-local spending and minor state and local sales and use taxes.

WILL THE PROJECT CONTRIBUTE TO ANY CUMULATIVE EFFECTS IN THE STUDY AREA?

Cumulative effects are those effects that could occur in the same geographic area and during the same time as the effects from the Project. They include effects associated with past, present, and future projects, plans, or programs that are reasonably likely to occur.

For the EIS, the following projects, plans, and programs were included in the cumulative effects analysis:

- Cherry Point Aquatic Reserve;
- BP Rail Logistics Facility;
- Oil production from the Alaska North Slope with substantial volumes by 2016;
- Expansion of Kinder Morgan's Transmountain Pipeline to export oil to Asia by 2016;
- Oil production from the Alaska Outer Continental Shelf beginning in 2024; and
- Bulk carrier and tug traffic calling at the Gateway Pacific Terminal by 2030.

The North Wing of the BP Cherry Point dock was constructed prior to implementation of the Cherry Point Aquatic Resource Management Plan, which states that the existing industrial uses at Cherry Point do not conflict with aquatic reserve status (WSDNR 2010).⁶ The Proposed Action is therefore not expected to cumulatively affect the Cherry Point Aquatic Reserve.

BP recently constructed a Rail Logistics Facility (RLF) designed to receive and unload crude oil and other feedstock transported by rail for processing at the BP Cherry Point refinery. Utilization of the RLF to deliver crude to the refinery may displace crude deliveries by pipeline and/or ship by up to 46 to 58 vessel calls annually (assuming daily rail deliveries and depending on the average tanker crude oil cargo size that is displaced).

Operation of the North Wing generally reduces the risk of accident and oil spill. However, the addition of other future projects that could occur independently from operation of the North Wing at the BP Cherry Point Dock could increase deep draft traffic in the Puget Sound, which may increase risk. In the cumulative effects analysis, projects under development include expansion of Kinder Morgan terminal facilities in Vancouver, other facilities in the Vancouver area, and the Gateway Pacific Terminal at Cherry Point. The addition of this "cumulative" traffic could increase the potential risk of accident and oil spill by up to 34 percent. However, this increase would be independent of the reduction of risk attributable to operation of the North Wing at the Cherry Point Dock.

ARE ANY MITIGATION MEASURES PROPOSED?

BP does not create any new operations or variation in its current operations with operation of both the North and South Wings at its dock, compared to operation of only the South Wing. With operation of two wings, the same types and range of vessels calls at the BP Cherry Point dock are projected to occur; the same sequence of events for mooring, loading or unloading, and departure would take place; and the same routes for transiting into and out of Puget Sound are expected to be used. The incremental risk analysis indicates that the risk of accident and oil outflow will be reduced with operation of the North Wing up to approximately 335 calls per year and that the risk could be increased to some small degree at traffic levels between 335 and 420 calls year.

An integrated system of vessel design requirements, vessel traffic control during transit, pilotage, operating procedures for loading and unloading cargos, oil spill prevention and response, and overall management of marine traffic is currently in place in Puget Sound to avoid and minimize the risk of accident and oil spill. This system has been developed and implemented under the authority of the Washington State Department of Ecology, the USCG, and the CCG.

In addition to risk avoidance and minimization efforts already implemented, a reduction in risk is predicted to occur under the current (medium-range) and low-range future vessel traffic scenario

⁶ Washington State Department of Natural Resources (WSDNR). 2010. Cherry Point Environmental Aquatic Reserve Management Plan. November.

forecasted by BP with operation of the North Wing. Should traffic increase to BP's high-range vessel traffic scenario, the current risk mitigation system is capable of recognizing the risk and modifying or incorporating new procedures to minimize the small increase in potential risk. Under these circumstances, no additional mitigation measures are proposed specific to the vessel traffic calling at the BP Cherry Point dock.

HOW WILL THIS EIS BE COMPLETED?

The Draft EIS is now available for review and comment by members of the public, regulatory agencies, and tribes for a specific period of time. The USACE has issued a Notice of Availability that specifies the time period for this review and how to submit comments on the Draft EIS to the USACE. After the close of the comment period, the USACE will review all comments received. Response to some comments may include changes to the Draft EIS. After all changes to the Draft EIS have been completed, a record of all comments received and responses to these comments will be prepared and incorporated into the Final EIS. The Final EIS then will be published by the USACE. A public notice announcing the availability of the Final EIS and the USACE's decision regarding the DA permit will be issued to complete the EIS process under NEPA.

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Acronyms

9 th Circuit Court	U.S. Court of Appeals 9 th Circuit
AIS	Automated Identification System
Alaska Crude	Alaska North Slope crude oil
ANS	aquatic nuisance species
ARCO	Atlantic Richfield Company
ATB	articulated tug and barge
ATBA	area to be avoided
bbl	barrels
BMP	best management practice
BP	BP West Coast Products, LLC
B.P.	before present
BP Cherry Point dock	BP Cherry Point Marine Terminal dock
BP refinery	BP Cherry Point Refinery
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAA	Clean Air Act
CBG	census block group
CCG	Canadian Coast Guard
CEQ	Council on Environmental Quality
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ -e	CO ₂ -equivalent
CPS	coastal pelagic species
CVTS	Cooperative Vessel Traffic System
DAHP	Department of Archaeology and Historic Preservation
DA permit	Department of the Army permit
DO	dissolved oxygen
DPS	distinct population segment
dwt	deadweight tons
ECA	Emission Control Area
Ecology	Washington State Department of Ecology
EEZ	Exclusive Economic Zone
EFH	essential fish habitat
EIS	environmental impact statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERC	Environmental Research Consulting
ERTV	emergency response towing vessel

ESA	federal Endangered Species Act
ESU	evolutionary significant unit
FMR	fire-modified rock
FR	Federal Register
FRP	Facility Response Plan
GHG	greenhouse gas
GPT	Gateway Pacific Terminal
GRP	Geographic Response Plan
GWU	George Washington University
GWU VTRA	George Washington University Vessel Traffic Risk Analysis
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HAPC	habitat area of particular concern
HCs	hydrocarbons
HFCs	hydrofluorocarbons
HFO	heavy fuel oil
ICS	Incident Command System
kHz	kiloHertz
km	kilometer
LOCs	levels of concern
m ³	cubic meters
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MBTA	Migratory Bird Treaty Act
MCTS	Marine Communications and Traffic Service
µg/L	micrograms per liter
mg/L	milligrams per liter
MHHW	mean higher high water
MHW	mean high water
mL	milliliters
MLLW	mean lower low water
MLLWS	mean lower low water spring
MLW	mean low water
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
mph	miles per hour
msl	mean sea level
MX	Marine Exchange of Puget Sound
N ₂ O	nitrous oxide
NAAQS	national ambient air quality standards
NANPCA	Non-Indigenous Aquatic Nuisance Prevention and Control Act of 1990
NBIC	National Ballast Information Clearinghouse

NCO	National Oil and Hazardous Substances Pollution Contingency Plan
NEI	Northern Economics, Inc.
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NISA	National Invasive Species Act of 1996
NMFS	National Marine Fisheries Service
nmi	nautical miles
NO	nitrogen oxide
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPS	National Park Service
NRHP	National Register of Historic Places
NWACP	Northwest Area Contingency Plan
NWIFC	Northwest Indians Fisheries Commission
NWR	national wildlife refuge
OA	Ocean Advocates et al.
OCS	Outer Continental Shelf
OPA 90	Oil Pollution Act of 1990
OSRO	oil spill removal organization
PacFIN	Pacific Fisheries Information Network
PAHs	polycyclic aromatic hydrocarbons
Parks Commission	Washington State Parks and Recreation Commission
Pb	lead
PFCs	perfluorocarbons
PFMC	Pacific Fishery Management Council
PM ₁₀	respirable particulate matter
PM _{2.5}	fine particulate matter
PNW	Pacific Northwest
ppm	parts per million
ppt	parts per trillion
RCW	Revised Code of Washington
RLF	Rail Logistics Facility
ROC	reactive organic compound
SEPA	Washington State Environmental Policy Act
SF ₆	sulfur hexafluoride
SIP	State Implementation Plan
SO ₂	sulfur dioxide
spp.	Species
SHPO	State Historic Preservation Officer

SMA	Shoreline Management Act
SOC	Standard of Care
TCP	traditional cultural property
TGA	The Glosten Associates
TGA VTA	<i>BP Cherry Point Vessel Traffic Analysis</i> (The Glosten Associates 2013)
TSP	total suspended particulate matter
TSS	Traffic Separation Scheme
U&A	usual and accustomed grounds and stations
UGA	Urban Growth Area
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USCG	U.S. Coast Guard
VEAT	Vessel Entries and Transits for Washington Waters
VOC	volatile organic compound
VRP	Vessel Response Plan
VTSS	Vessel Traffic Operation Support System
VTRA Report	<i>Assessment of Oil Spill Risk due to Potential Increased Vessel Traffic at Cherry Point, Washington</i> (van Dorp et al. 2008)
VTSPS	Vessel Traffic Service Puget Sound
WAAQS	Washington ambient air quality standards
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WHR	Washington Heritage Register
WSDNR	Washington State Department of Natural Resources
WSDOT	Washington State Department of Transportation

Glossary

Allision. A vessel striking a fixed object, such as a pier or navigation aid. The term *collision* refers to a vessel striking another vessel.

Anadromous fish. Fish that are born in freshwater, spend their life in the sea, and return to freshwater to spawn.

Aquaculture. Farming of fish, shellfish, or other aquatic plants and animals.

Area to be avoided (ATBA). A defined area with known navigational hazards or important resources from which all ships or certain classes of ships are excluded.

Articulated tug and barge (ATB). A tug with a mechanical connection to a barge. A hinged connection allows the tug to pitch independently of the barge, providing much better sea-keeping capability than conventional towed barge systems (<http://www.oceantugbarge.com/PDF/history.pdf>).

Attainment area. An area that has met federal standards for concentration of a monitored pollutant over a designated period (3 years in most cases).

Ballast water. Water used by deep-draft cargo vessels to maintain vessel stability and trim. The volume required depends on shipboard conditions affected by cargo weight and type. Changes in vessel weight as a result of cargo loading or unloading results in the necessity to discharge or fill ballast tanks accordingly. The vessels calling at the BP Cherry Point dock to take on refined petroleum product typically arrive already in ballast, whereas those arriving with a crude oil delivery take on ballast water to compensate for off-loaded cargo.

Bunkering. The oil transfer or operation to replenish fuel for vessels weighing 300 gross tons or more.

Caisson. A watertight structure within which construction work is performed under water.

Candidate species. A species proposed for listing under the Endangered Species Act at some time in the near future.

Category 3 marine diesel engines. Marine diesel engines with per-cylinder displacement at or above 30 liters. On April 30, 2010, EPA published a final rule in the Federal Register (75 CFR 22896) that established emission standards for these engines installed on large ocean-going U.S. vessels, such as tankers and barges. The final rule requires reductions in NO_x emissions and adopts standards for emissions of hydrocarbons and carbon monoxide CO from new Category 3 marine diesel engines.

Census block group (CBG). The smallest geographic area for which the U.S. Census Bureau provides consistent sample data; generally contains a population of 600 to 3,000 individuals.

Coastal pelagic species. Northern anchovy, jack mackerel, Pacific sardine, Pacific (chub or blue) mackerel, and market squid.

Criteria pollutants. The six pollutants for which the U.S. Environmental Protection Agency has established national ambient air quality standards (NAAQS), as directed by the Clean Air Act: nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), and lead.

Critical habitat. Specific areas within the geographical area occupied by a species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation (<http://www.nmfs.noaa.gov/pr/glossary.htm>).

Dolphin. A stand-alone structure, usually consisting of a cluster of piles, a concrete mass supported by a number of piles, or a sheet pile cell, that is used to guide and/or moor vessels.

Dissolved oxygen (DO). Measurement of the amount of gaseous oxygen (O₂) in water. Adequate DO is necessary for good water quality and for survival of aquatic species. When oxygen levels in water drop below 5.0 milligrams per liter, aquatic life is put under stress. The lower the concentration, the greater the stress; low levels of DO over extended periods can kill fish.

Distinct population segment (DPS). A vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. The federal Endangered Species Act provides for listing species, subspecies, or distinct population segments of vertebrate species. (<http://www.nmfs.noaa.gov/pr/glossary.htm>.)

Drift grounding. When a vessel loses propulsion, or propulsion and steering capability, and goes aground while adrift.

Emission control area (ECA). A sea area with stricter requirements concerning the use of bunker fuel compared to other sea areas. As of August 1, 2012, all large ships traveling within 200 nautical miles of the coasts of the United States and Canada are required to burn cleaner fuel (fuel with lower sulfur dioxide emissions).

Endangered species. Species that are in danger of extinction throughout all or a significant portion of their range.

Endangered Species Act (ESA). The act (16 USC 1531 et seq., 50 CFR Parts 17 and 222) that provides for protection and management of species that are federally listed as threatened or endangered and designated critical habitat for these species.

Entrainment. Direct uptake of aquatic organisms by the suction field generated by water intakes on vessels.

Environmental justice. Addresses the fair treatment of people of all races and incomes with respect to federal actions that affect the environment. Fair treatment implies that no group of people should bear a disproportionate share of negative impacts from an action.

Environmental risk. The probability of an incident (collision, allusion, power grounding, drift grounding, bunker transfer error, cargo transfer error, or other non-impact error). For incidents where an oil outflow occurs, *environmental risk* considers the combined volume of crude oil, refined petroleum product, or bunker oil potentially released.

Evolutionary significant unit (ESU). A Pacific salmon population or group of populations that is substantially reproductively isolated from other conspecific populations and that represents an important component of the evolutionary legacy of the species. The ESU policy (56 FR 58612) for Pacific salmon defines the criteria for identifying a Pacific salmon population as a distinct population segment (DPS), which can be listed under the ESA. (<http://www.nmfs.noaa.gov/pr/glossary.htm>.)

Exclusive Economic Zone (EEZ). A zone that extends up to 200 nautical miles from the coastline. Presidential Proclamation 5030 created the EEZ in 1983.

Gill nets. Vertical panels of netting usually set in a straight line. Targeted fish species are entangled in the net. Salmon fisheries in particular use gill netting because of their low incidence of catching non-target species.

Kelp. A group of primarily brown and some red algae (seaweeds) that are large, occur primarily in low intertidal to subtidal zones, and are attached to rock substrates. They are characterized as “floating” and “non-floating” based on whether the mature individuals form canopies on the water surface at high tides.

Lithics. Chipped stone artifacts manufactured with percussion and pressure techniques. Projectile points (or fragments), bifaces, flake tools, cores, and debitage are all common lithic artifacts found in archaeological sites.

Maintenance area. Regions previously designated as nonattainment areas that have since achieved attainment. (See definitions for “Attainment area” and “Nonattainment area.”)

Milligrams per liter (mg/L). A unit of the concentration of a constituent in water or wastewater. It represents 0.001 gram of a constituent in 1 liter of water and is approximately equal to one part per million (ppm).

National Register of Historic Places (NRHP). The federal list of historic, archaeological, and cultural resources worthy of preservation that was created under the National Historic Preservation Act. Historic properties listed in the NHRP include districts, sites, buildings, structures, and objects that are significant in American history, prehistory, architecture, archaeology, engineering, and culture.

Nonattainment area. An area that has violated federal standards for concentration of a monitored pollutant.

Northwest Indians Fisheries Commission (NWIFC). An organization that represents the treaty tribes of northwest Washington with regard to aboriginal subsistence and commercial fishing. (See definition for “usual and accustomed grounds and stations.”)

Osmoregulation. Maintaining the mineral and salt content in the blood while transitioning from a freshwater to saltwater (or more saline) environment.

Power grounding. When a vessel underway goes aground primarily due to a failure of the vessel’s steering capability or the vessel’s command structure.

Proposed species. Any species that is proposed in the Federal Register to be listed as a threatened or endangered species under the Endangered Species Act.

Raptors. Hawks, eagles, harriers, and falcons are medium to large birds with upright posture and strong, short, hooked beaks and acute vision that they use to catch live vertebrate prey. Vultures share these characteristics, but feed primarily on carcasses of large animals. Osprey are large diving hawks that subsist on a diet of live fish.

Recruitment. The time when a young fish enters a fishery (i.e., becomes large enough to be caught) or enters a specific habitat such as juvenile or adult habitat (<http://www.nmfs.noaa.gov/pr/glossary.htm>).

Salmonid species. Salmon, trout, and char.

Seabirds. A diverse assemblage of birds that are tied to marine habitats during for at least a portion of their life cycle. Loons, grebes, cormorants, auks, and puffins feed by diving deeply for fish or invertebrates, while gulls and terns feed near the water surface or shoreline. Albatrosses, shearwaters, and petrels spend much of their life at sea, feeding from the water's surface and coming to land only to nest.

Seine. A fishing net that hangs vertically in the water, with floats at the top and weights at the bottom. A *purse seine* is so called because the seine is drawn into the shape of a bag to enclose the catch; this type of fishing is done from a boat. A *beach seine* is fastened to the shore at one end, circled about a school of fish, and then drawn ashore.

Shell middens. Deposits of non-edible portions of shellfish species that are almost always located along marine water sources.

Shorebirds. A diverse group of birds re associated with shorelines and feed primarily on invertebrates or small aquatic creatures. They generally have longish legs and short to long beaks which they use to probe sand or mud substrates or to pick intertidal invertebrates from rocks. Most species migrate long distances. All but the phalaropes do not generally swim, but walk along shorelines and beaches.

Species complex. A subgroup of a species, with a similar distribution and life history pattern.

Stock. A group of fish that is genetically self-sustaining and isolated geographically or temporally during reproduction. As defined by the Marine Mammal Protection Act, a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature (<http://www.nmfs.noaa.gov/pr/glossary.htm>).

Subsistence fishing. Fishing, other than sport fishing, that is carried out primarily to feed the family and relatives of the person who is fishing, or for traditional/ceremonial purposes.

Tainting. An objectionable oil-derived taste of fish and shellfish acquired from a spill of oil.

Threatened species. A species that is likely to become endangered throughout all or a significant portion of its range. (See definition for "Endangered species.")

Traditional cultural property (TCP). A place eligible for listing in the National Register of Historic Places because of its association with cultural practices and beliefs. Traditional fishing techniques often are used, such as rod and tackle, arrows and harpoons, throw nets and drag nets, and traditional fishing boats.

Traffic Separation Scheme (TSS). A traffic management route system ruled by the International Maritime Organization used to regulate traffic at busy, confined waterways. The traffic lanes indicate the general direction of the ships in that zone (http://en.wikipedia.org/wiki/Traffic_Separation_Scheme).

Treaty tribes. Indian tribes in Washington State who signed treaties with the United States in the mid-1850s to retain the right to fish at all "usual and accustomed grounds and stations." These are areas traditionally harvested for water-dwelling animals and plants before the treaty. The U.S. government recognizes 25 Indian tribes as parties to the Stevens-Palmer Treaties, and 24 tribes have usual and accustomed fishing places within the boundaries of the present-day state of Washington (Woods 2005).

Trestle. A pier-like structure used to provide access between shore and an offshore structure.

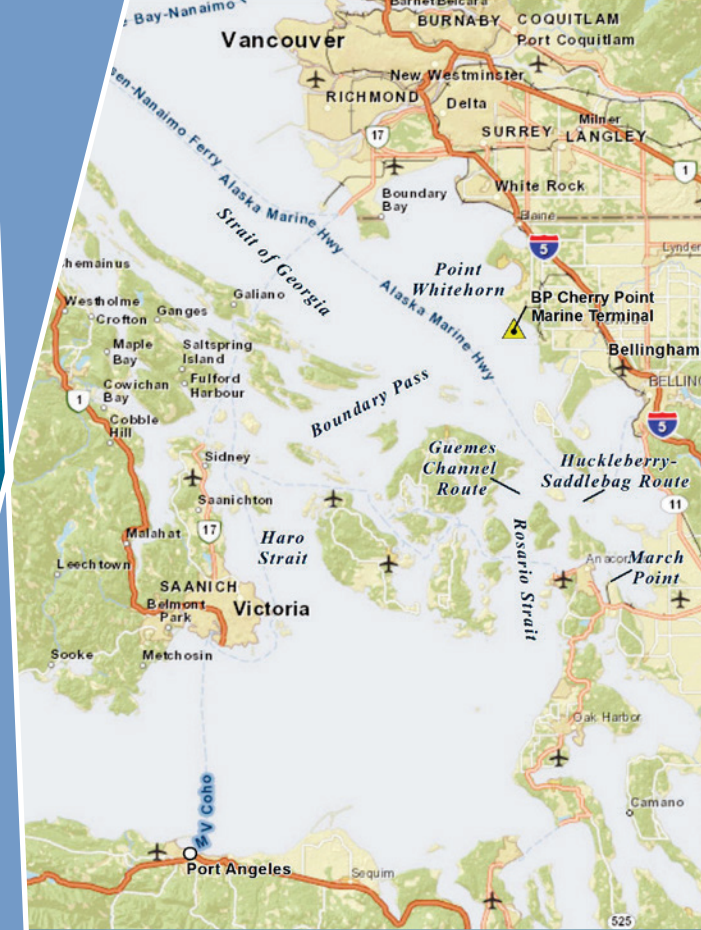
Trophic. A class of organisms that occupy the same position in the food chain.

Unclassified area. The air quality designation for an area when data are insufficient or inadequate to determine whether a pollutant concentration is violating the federal standard. (See definitions for “Attainment area,” “Nonattainment area,” and “Maintenance area.”)

Usual and accustomed grounds and stations (U&As). Areas traditionally harvested by Indian tribes for water-dwelling animals and plants. Indian tribes in Washington State who signed treaties with the United States in the mid-1850s retained the right to “fish” at all U&A. The U.S. government recognizes that 24 tribes have usual and accustomed fishing places within the boundaries of the present-day state of Washington.

Vessel call. For this analysis, defined as a completion of a vessel’s transit to the BP Cherry Point dock, a loading or unloading operation, and departure of the vessel for another destination.

Waterfowl. Medium to large plump-bodied birds with long necks and short wings commonly found on or near water. Waterfowl feed while on the water by diving or tilting their bodies so that their heads and necks are submerged to search for fish, plants and invertebrates.



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